



# ESSENTIAL BODY-COMPOSITION BIOMARKERS

## Essential Body-Composition

### Biomarkers:

Estradiol (E2)  
 Progesterone (Pg)  
 Testosterone (T)  
 DHEA-S (DS)  
 Diurnal Cortisol (Cx4)  
 Thyroid Stimulating Hormone (TSH)  
 Vitamin D (D2, D3)  
 Insulin (In)  
 Hemoglobin A1c (HbA1c)

### Also included in the Ultimate Body-Composition Biomarkers test:

Free Triiodothyronine (fT3)  
 Free Thyroxine (fT4)  
 Thyroid Peroxidase Antibodies (TPO)  
 High Sensitivity C-Reactive Protein (hsCRP)  
 Triglycerides (TG)  
 Total Cholesterol (CH)  
 LDL Cholesterol (LDL)  
 VLDL Cholesterol (VLDL)  
 HDL Cholesterol (HDL)

Consider this "Ultimate" test version when symptoms of thyroid deficiency are problematic, or with abdominal obesity, and insulin resistance/metabolic syndrome. Age should also be a consideration especially in absence of recent thyroid profile testing.

Advantages include provision of better estimation of thyroid hormone bioavailability to facilitate effective thyroid interventions.

## Hormones & Weight Management

Essential Body-Composition Biomarkers testing is a bloodspot test that identifies hormonal, coenzyme, and other metabolic imbalances that contribute to weight gain and difficulty losing or sustaining ideal body-composition. It provides an essential contextual tool and marker for persons aiming for optimal body composition and performance by identifying localised areas of fat storage on body associated with imbalances in hormonal levels, facilitating the possibility of remedial intervention. Used as a preventative tool, the test also serves as a powerful early indicator of insulin resistance and risks for metabolic syndrome and diabetes.

In 2010 the US was ranked as the world's fattest developed nation, and the latest data out of the US CDC reports over a third of American adults obese—with the highest prevalence among men and women over 40 years old. It is not a coincidence that this is the age when people start to see the impacts of hormonal imbalance.

### What can this testing do for you?

- ▶ Identify hormonal imbalances associated with weight gain and localised fat.
- ▶ Detect risk markers for insulin resistance, metabolic syndrome and diabetes
- ▶

### What is included in the test?

Estradiol (E2) at optimal physiological levels in women promotes a healthy distribution of fat in hips, thighs, breasts, and subcutaneously. However, in excess, and in the absence of progesterone, estrogen predisposes to unhealthy surplus weight gain in these tissues. Men generally have much lower levels of estradiol and higher testosterone, which is responsible for greater muscle mass and less fat distribution in areas of the body normally seen in women. In overweight men testosterone levels drop and estrogens rise leading to the same problematic weight gain in the hips, thighs, and breasts (referred to as gynecomastia) as seen in women.

Progesterone (Pg) in addition to its primary role in attenuating the effects of excess estrogen in the body by downregulating estrogen receptors, aids weight management by acting as a natural diuretic. Its natural calming effects in the brain may also reduce stress-related overeating and food cravings. As a mineralocorticoid receptor antagonist, progesterone counteracts the effects of mineralocorticoid activation, which include the stimulation of fat cell formation, increased body weight, and release of inflammatory cytokines. However,



## Clinical Utility

The Weight Management Profile allows providers to identify specific hormone imbalances associated with excess weight gain or obesity, vitamin D deficiency, and hypothyroidism in their patients. As a risk assessment panel it allows for early detection of insulin resistance, metabolic syndrome, and type 2 diabetes. The comprehensive test report is designed to help clinicians recommend effective treatments to rebalance hormone levels, address vitamin D and thyroid deficiencies, reduce overall risk for metabolic syndrome, and potentially avoid the onset of type 2 diabetes.

## Who Benefits from Profile Testing?

Menopausal women/andropausal men with unexplained weight gain, obesity, abdominal fat, high BMI (body mass index), hypometabolism. Commonly related symptoms include loss of lean muscle, increased appetite and/or sugar cravings, chronic stress, and low thyroid symptoms.

## Advantages of Saliva and Blood Spot Testing

- Convenient sample collection at home - no phlebotomist required
- Easy shipment of samples from home to the lab
- Samples stable for several weeks at room temperature
- Excellent correlation with serum/plasma assays

## References

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